IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant: Stuart Cain   Patent Application

Application Number: 10/648,531   Group Art Unit: 2132

Filed: August 25, 2003   Examiner: Almeida, Devin E.

For: A SECURITY INDICATION SPANNING TREE SYSTEM AND METHOD

APPEAL BRIEF

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I. Real Party in Interest

The assignee of the present invention is Hewlett-Packard Development Company, L.P.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the Appellant.

<u>III. Status of Claims</u>

Claims 1- 20 are rejected. This Appeal involves Claims 1-20.

IV. Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

Independent Claims 1, 10, and 15 of the present application pertain to embodiments associated with methods and systems for a security indication spanning tree method.

As recited in Claim 1, a "security indication spanning tree method" is disclosed. One embodiment is depicted at least in Figure 1. As described in the instant disclosure at least on page 8, lines 9-21, and Figure 1, one method includes 110 determining the asset value of a network node. The instant disclosure further includes on at least page 8, lines 23-29, and page 9, lines 1-3, and 120 of Figure 1, ascertaining an exposure rating of the network node. Furthermore, the instant disclosure includes on at least page 9, lines 5-14, and Figure 1, establishing 130 a functional priority risk indicator for indicating the likelihood of an attack from another network node. The instant disclosure further includes on at least page 9, lines 16-21, and Figure 1, creating a spanning tree schematic of a network including the network node as shown at 140, wherein the spanning tree schematic includes an indication of the asset value.

As recited in Claim 10, a "security indication spanning tree system" is disclosed. One embodiment is depicted at least in Figure 3. As described in the instant disclosure on page 14, lines 19-22, one embodiment includes bus 357 of Figure 3 for communicating information. The instant disclosure further includes on page 14, lines 22-24, a processor 351 of Figure 3 coupled to bus 357, the processor 351 for processing the information including instructions for building an attack impact susceptibility spanning tree representation including asset value factors. Furthermore, the instant disclosure includes on page 14, line 29, and page 15, lines 1-2, a memory 352 of Figure 3 coupled to bus 357, the memory 352 for

storing the information, including instructions for building the attack impact susceptibility spanning tree representation including the asset value factors.

As recited in Claim 15, "[a] computer usable storage medium having computer readable program code embodied therein for causing a computer system to implement security indication spanning tree instructions" is disclosed. One embodiment is depicted at least in Figure 4. As described in the instant disclosure on page 15, lines 24-29, one embodiment includes a device examination module 411 of Figure 4 for examining information regarding devices included in a centralized resource network, wherein the examining includes ascertaining what applications the devices support. The instant disclosure further includes on page 16, lines 1-5, an importance indication module 412 of Figure 4 for obtaining an indication of a relative importance of functionality provided by the device. Furthermore, the instant disclosure includes on page 16, lines 20-25, a spanning tree module 415 of Figure 4 for building a spanning tree topology representation including the indication of the relative importance of the device in supporting the applications.

VI. Grounds of Rejection to Be Reviewed on Appeal

1.   Claims 1-16, 19, and 20 are rejected under 35 U.S.C. §102(e) as being anticipated by Fox et al. (U.S. Patent No. 6,535,227) (hereinafter referred to as "Fox").

2.   Claims 17 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fox in view of Burrows et al. (U.S. Patent Publication No. 2002/0073338) (hereinafter referred to as "Burrows").

VII. Argument

1. <u>Whether Claims 1-16, 19, and 20 are rejected under 35 U.S.C. §102(e) as being anticipated by Fox</u>.

Appellant respectfully submits that embodiments of the present invention as recited in Claims 1-16, 19, and 20 are not anticipated by Fox, in view of the following rationale.

Appellant respectfully points out that independent Claim 1 (Independent Claims 10 and 15 include similar features) recites "a security indication spanning tree method comprising:

<u>determining asset value</u> of a network node;

ascertaining exposure rating of said network node;

establishing a functional priority risk indicator for indicating the likelihood of an attack from another network node; and

creating a spanning tree schematic of a network including said network node, wherein said spanning tree schematic <u>includes an indication of said asset value</u> (emphasis added).

Appellant respectfully notes that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference". MPEP §2131; *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 103 (Fed. Cir. 1987).

The instant Office Action states that "Fox teaches everything with respect to claim 1, a security indication spanning tree method comprising: <u>determining asset value of a network</u>

node (see abstract and column 3 lines 34-59);…and creating a spanning tree schematic of a network including said network node, wherein said spanning tree schematic <u>includes an indication of said asset value</u> (see abstract and figure 7, 9, and 10)." (Emphasis added; Office Action mailed on December 10, 2007, Pages 2-3.)

Appellant respectfully submits that Fox does not anticipate "determining <u>asset value</u> of a network node" (emphasis added), or "said spanning tree schematic includes an <u>indication of said asset value</u>" (emphasis added) as recited in Appellant's Claim 1. Appellant understands Fox to disclose a method of using a graphical user interface on a computer screen "for determining the <u>vulnerability posture</u> of a network." (Emphasis added; Fox, ABSTRACT.) Further, lines 26-33 of Fox's ABSTRACT disclose the following: "The respective network icons are linked together in an arrangement corresponding to how network elements are interconnected within the network. Selected portions of the <u>network map turn a different color indicative of a vulnerability that has been established for that portion of the network after vulnerability posture of the network has been established</u> (emphasis added)."

Whereas Fox discloses a portion of a network map turning a different color <u>indicative of a vulnerability</u>, Appellant's Claim 1 discloses determining an <u>asset value</u>, and creating a spanning tree schematic including an <u>indication of the asset value</u>.

"Claims are not to be read in a vacuum, and limitations therein are to be interpreted in light of the specification in giving them their 'broadest <u>reasonable</u> interpretation'." 710 F.2d at 802, 218 USPQ at 292 (quoting <u>In re Okuzawa</u>, 537 F. 2d 545, 548, 190 USPQ 464, 466 (CCPA [1976]) (emphasis in original); MPEP 2111.02, II). "[T]he ordinary and customary

meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application." <u>Phillips v. AWH Corp.</u>, 415 F.3d 1303, 1313, 72 USPQ2d 1321, 1326 (Fed. Cir. 2005) (*en banc*). <u>Sunrace Roots Enter. Co. v. SRAM Corp.</u>, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); <u>Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc.</u>, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003) ("In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art.")

Appellant respectfully submits that Fox's "vulnerability" is not the same as Appellant's "asset value" as recited in Appellant's Claim 1. Fox's Background of the Invention section defines 'vulnerability' as "…any situation that could cause loss of one of those three qualities ['qualities' refers to secrecy, integrity, and availability (Fox, column 1, lines 37-44)]" (Fox, column 1, lines 42-44).

In contrast, the ordinary and customary meanings attributed to the term 'asset value' of Applicant's Claim 1 is not the same as Fox's 'vulnerability'. Moreover, as stated herein, limitations within Claims are to be read in light of the specification, and are to be given their broadest meaning. Appellant's specification describes one embodiment of the term 'asset value' as providing an indication of the <u>economic value or utility</u> of the functions provided by the network node. Application, page 8, lines 9-21. The term 'asset value' should be read in light of the specification, which defines 'asset value' as the network node's economic value or utility. Given the context of the specification explanation and definition, and even considering its broadest meaning, <u>the term 'indication of said asset value' does not equate to identifying a vulnerability and indicating its level with different color indicators</u>. In other

words, Fox's vulnerability color indication is <u>not the same</u> as the economic asset value indication of Appellant's Claim 1. Furthermore, Appellant respectfully submits that Fox <u>remains silent</u> as to any indication of an asset's value.

Therefore, Appellant respectfully submits that Fox does not anticipate "determining <u>asset value</u> of a network node" (emphasis added), or "said spanning tree schematic includes an <u>indication of said asset value</u>" (emphasis added) as is recited in Appellant's Claim 1.

Therefore, Appellant respectfully submits that Fox does not anticipate the features as are set forth in independent Claim 1, and as such, Claim 1 traverses the instant Office Action's basis for rejection under 35 U.S.C. §102(e) and is in condition for allowance. Accordingly, Appellant also respectfully submits that Fox does not anticipate the similar features of independent Claims 10 and 15 for reasons stated herein regarding Claim 1. Furthermore, Appellant respectfully submits that Claims 2-9 dependent on Claim 1, 11-14 dependent on Claim 10, and 16, 19, and 20 dependent on Claim 15, overcome the rejection under 35 U.S.C. §102(e) as being dependent on an allowable base Claim.

2.   <u>Whether Claims 17 and 18 are rejected under 35 U.S.C. §103(a) as being obvious over Fox in view of Burrows.</u>

Applicants respectfully submit that the combination of Fox and Burrows does not satisfy the requirements of a *prima facie* case of obviousness because the <u>combination</u> of Fox and Burrows <u>fails to suggest</u> the present invention as claimed. In order to establish a *prima facie* case of obviousness, the prior art <u>must</u> suggest the desirability of the claimed invention (MPEP 2142).

Additionally, "As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries" including "[a]scertaining the differences between the claimed invention and the prior art" (MPEP 2141(II)). "In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious" (emphasis in original; MPEP 2141.02(I)). Applicants note that "[t]he prior art reference (or references when combined) need not teach or suggest all the claim limitations. However, Office personnel must explain why the difference(s) between the prior art and the claimed invention would have been obvious to one of ordinary skill in the art" (emphasis added; MPEP 2141(III)).

Appellant respectfully points out that independent Claim 15 recites "a computer usable storage medium having computer readable program code embodied therein for causing a computer system to implement security indication spanning tree instructions comprising:

a device examination module for examining information regarding devices included in a centralized resource network , wherein said examining includes ascertaining what applications said devices support;

an importance indication module for obtaining an indication of a relative importance of functionality provided by said device; and

a spanning tree module for building a spanning tree topology representation <u>including said indication of said relative importance of said device in supporting said applications</u> (emphasis added)."

Appellant respectfully submits for the rationale stated herein in response to the present Office Action's 35 U.S.C.§102(e) rejection of Claim 1 that similar Claim 15 does not disclose "including said indication of said relative importance of said device in supporting said applications". Furthermore, Appellant respectfully submits that the present Office Action <u>fails to explain</u> why the difference(s) between the Fox and the features of Appellant's Claim 15 would have been obvious to one of ordinary skill in the art. Thus, Appellant respectfully asserts that Claims 17 and 18 depending on Claim 15 are patentable as being dependent on an allowable base Claim.

Additionally, Appellant respectfully submits that the teachings of Fox in view of Burrows are not sufficient to render Claims 17 and 18 *prima facie* obvious because there is no suggestion or motivation to make the proposed modification. "If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification." <u>In re Gordon</u>, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Appellant respectfully submits that there is no suggestion or motivation to modify Fox with the teachings of Burrows because <u>proposed modification would render Fox unsuitable for its intended purpose</u>, and therefore the teachings of Fox and Burrows are not sufficient to render Claims 17 and 18 *prima facie* obvious. Appellant understands Burrows to disclose a <u>packet traffic monitor which mitigates undesirable behavior patterns</u> by

instructing as many switches in the network as possible to <u>stop forwarding these broadcast</u> <u>packets</u>. On the other hand, Appellant understands the <u>intended purpose</u> of Fox is to <u>monitor</u> <u>the vulnerability posture</u> of a network and its individual nodes; the vulnerability posture is based in part on each node's exposure to other network elements.

Fox's 'vulnerability posture' involves fuzzy logic processing, which itself utilizes in part dynamic information as per <u>a node's exposure to its environment</u>. Burrow's discloses a method which <u>would block a node's exposure to its environment</u>, thereby <u>interrupting and</u> <u>distorting Fox's vulnerability posture calculations</u>. Thus, the teachings of Fox and Burrows are not sufficient to render the features of Claims 17 and 18 *prima facie* obvious since the proposed modification of Fox in view of Burrows would render Fox <u>unsuitable for its</u> <u>intended purpose</u>.

In view of the combination of Fox and Burrows not satisfying the requirements of a *prima facie* case of obviousness, Appellant respectfully submits that Claims 17 and 18 overcome the rejection under 35 U.S.C. §103(a), and that Claims 17 and 18 are thus in a condition for allowance.

<u>Conclusion</u>

Appellant believes that pending Claims 1-20 are directed toward patentable subject matter. As such, Appellant respectfully requests that the rejections of Claims 1-20 be reversed.

The Appellant wishes to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellant's undersigned representative if it is felt that a telephone conference could expedite prosecution

Respectfully submitted,
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1.   A security indication spanning tree method comprising:

determining asset value of a network node;

ascertaining exposure rating of said network node;

establishing a functional priority risk indicator for indicating the likelihood of an

attack from another network node; and

creating a spanning tree schematic of a network including said network node, wherein

said spanning tree schematic includes an indication of said asset value.

2.   A security indication spanning tree method of Claim 1 wherein said spanning tree

schematic includes an indication of said exposure rating.

3.   A security indication spanning tree method of Claim 1 wherein said spanning tree

schematic includes an indication of said attack risk.

4.   A security indication spanning tree method of Claim 1 wherein said asset value

provides an indication of an economic value of functions provided by said network node.

5.   A security indication spanning tree method of Claim 1 said asset value corresponds to

an economic impact of a disruption to functionality provided by said network node.

6.   A security indication spanning tree method of Claim 1 wherein said exposure rating

defines a threshold value corresponding to connectivity of the network node with other

network nodes.

7. A security indication spanning tree method of Claim 1 wherein said network node is given an exposure rating value based upon a connectivity distance from a root node.

8. A security indication spanning tree method of Claim 1 wherein said root node is a node closest to an external network.

9. A security indication spanning tree method of Claim 1 wherein said functional priority risk indicator is associated with an economic benefit and utility of functionality said network node provides.

10. A security indication spanning tree system comprising:

   a bus for communicating information;

   a processor coupled to said bus, said processor for processing said information including instructions for building an attack impact susceptibility spanning tree representation including asset value factors; and

   a memory coupled to said bus, said memory for storing said information, including instructions for building said attack impact susceptibility spanning tree representation including said asset value factors.

11. A security indication spanning tree system of claim 10 wherein said asset risk value is automatically determined..

12. A security indication spanning tree system of claim 10 further comprising a central console for interfacing with a network application management platform.

13.   A security indication spanning tree system of claim 10 wherein said instructions include attack spread risk determination instructions.

14.   A security indication spanning tree system of claim 10 wherein said instructions include exposure rating determination directions.

15.   A computer usable storage medium having computer readable program code embodied therein for causing a computer system to implement security indication spanning tree instructions comprising:

a device examination module for examining information regarding devices included in a centralized resource network , wherein said examining includes ascertaining what applications said devices support;

an importance indication module for obtaining an indication of a relative importance of functionality provided by said device; and

a spanning tree module for building a spanning tree topology representation including said indication of said relative importance of said device in supporting said applications.

16.   A computer usable storage medium of Claim 15 herein said relative importance of said device is based upon an economic value of functions said devices performs in support of said applications.

17.   A computer usable storage medium of Claim 15 further comprising an internal attack permeability module for investigating the permeability of a network in permitting an internal attack on a device from other devices included in the network.

18.   A computer usable storage medium of Claim 17 wherein said investigating includes:

analyzing the ease of attack on said device from other devices in said centralized

resource network; and

assigning an connectivity threshold value to said device based upon said analysis of

said ease of attack.

19.   A computer usable storage medium of Claim 15 further comprising an attack danger

assessment module for assessing the danger of an attack from other devices included in said

network.

20.   A computer usable storage medium of Claim 19 further comprising:

deriving an attack danger indication based upon said indication of said relative

importance of said device and said connectivity threshold value; and associating said attack

danger indication with said device.

IX. Evidence Appendix

No evidence is herein appended.

X. Related Proceedings Appendix

No related proceedings.